

Web Mapping with SS

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What is geospatial data?

- data or information identifies the geographic location of features on Earth
- natural or constructed features
- usually stored as coordinates and topology
- often accessed, manipulated or analyzed through Geographic Information Systems (GIS)



Spatial analysis

One of the first map-based spatial analysis

- Created in 1854
- Map by Dr. John Snow
- London cholera cases



Geometry – Data Types

Vector datasets

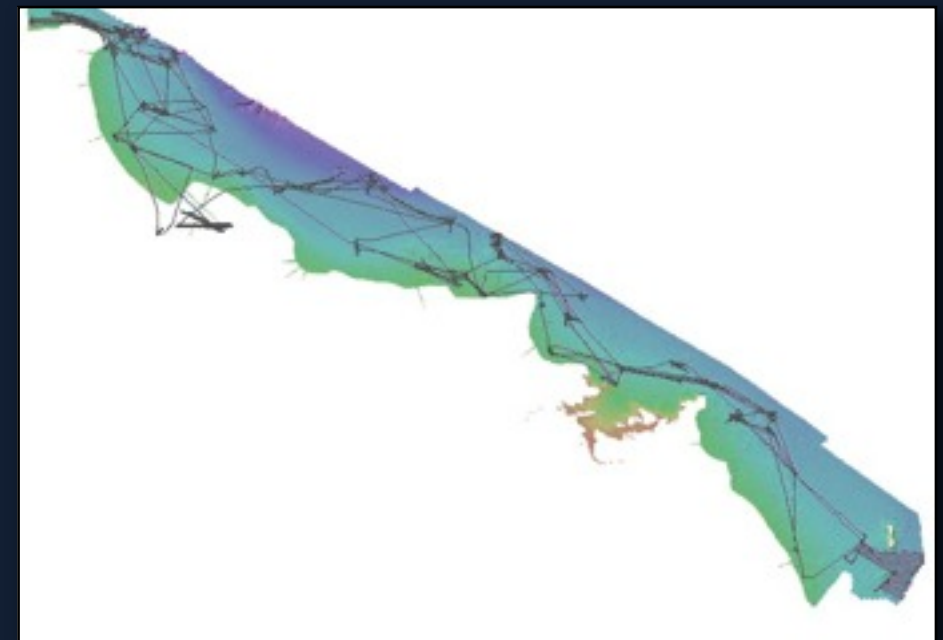
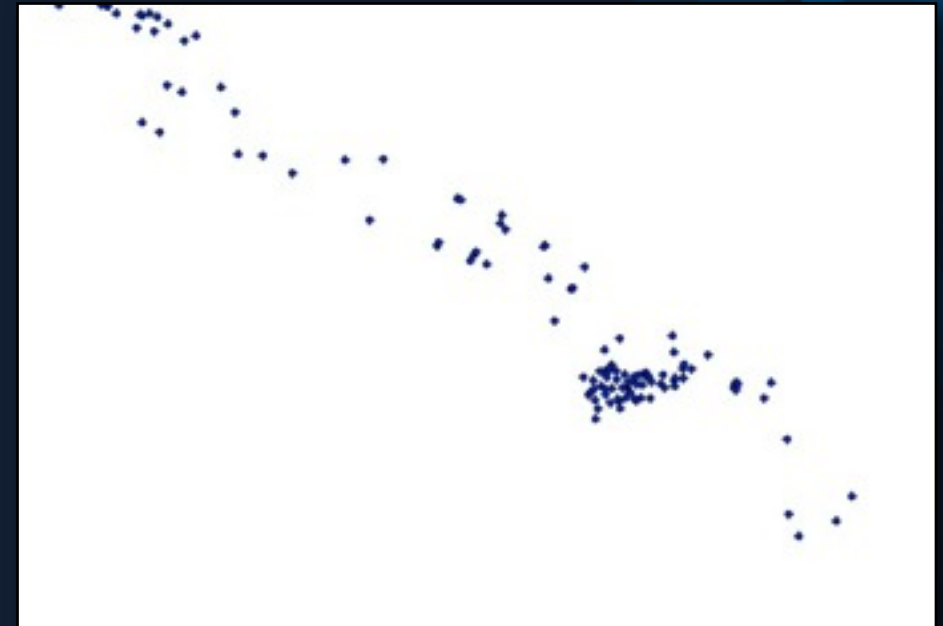
- Points, lines, polygons

Raster datasets

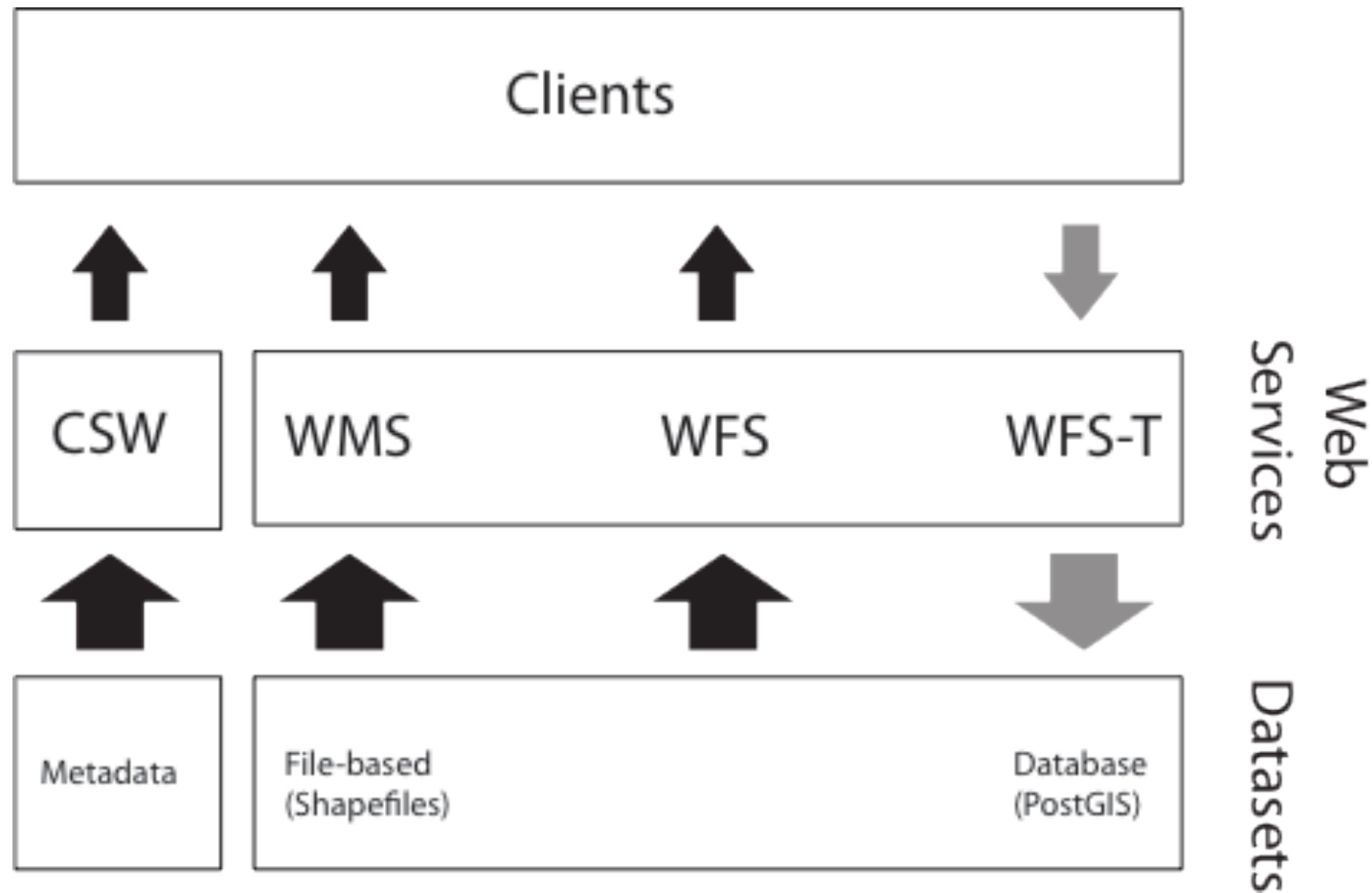
- Imagery, coverage

Geometries stored with

- Content, attributes,
- Coordinates, data projection



Map Sources – How to publish them?



Map Sources – Web Services

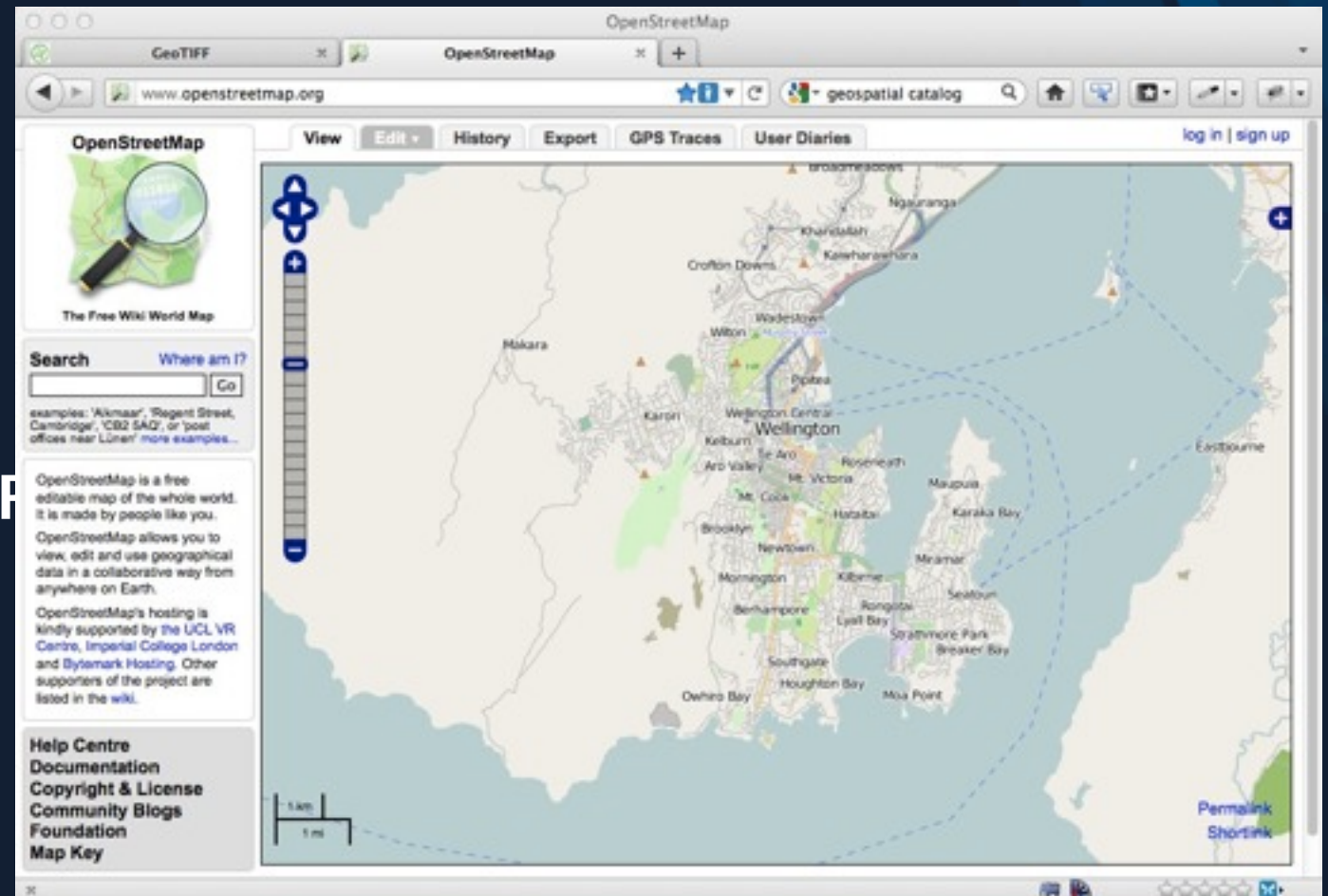
Open GeoSpatial Consortium (ISO/TC 211)

- Web Map Services (WMS)
- Web Feature Services (WFS)
- Web Services for Catalog
- GML, KML
- and others
- Web Map Service Tile Cached (WMS-C)

Map Layers

Context Layers

- Google Maps
- OpenStreetMap
- Bing Maps
- Vendor map services (i.e., ESRI)

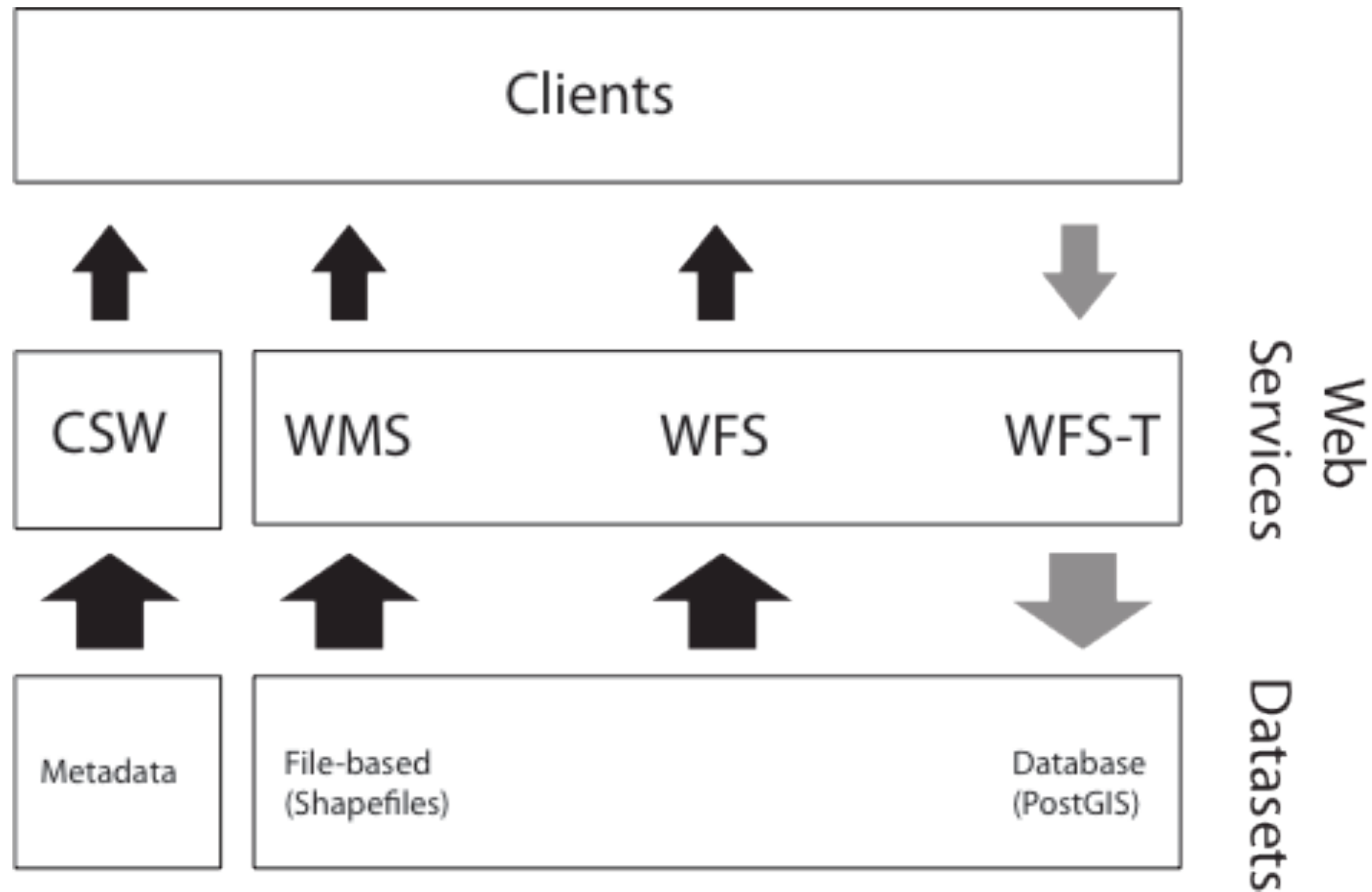


Open Source projects

OSGeo project stack:

- UMN Mapserver
- GeoServer
- GeoWebCache
- PostgreSQL / PostGIS
- GeoNetwork
- OpenLayers
- and many more

Open Source projects



Bring it all together

SilverStripe CMS

SilverStripe GeoViewer

- Manage map and configure OpenLayers with the CMS
- Add mapping capability to any page type
- Support open standards and provide a re-usable solution
- Ability to participate in NZ GeoSpatial Strategy

SilverStripe GeoCatalog

- Manage metadata and make it easy accessible for users
 - human beings, as well as other services

SilverStripe GeoViewer

Used in several production sites

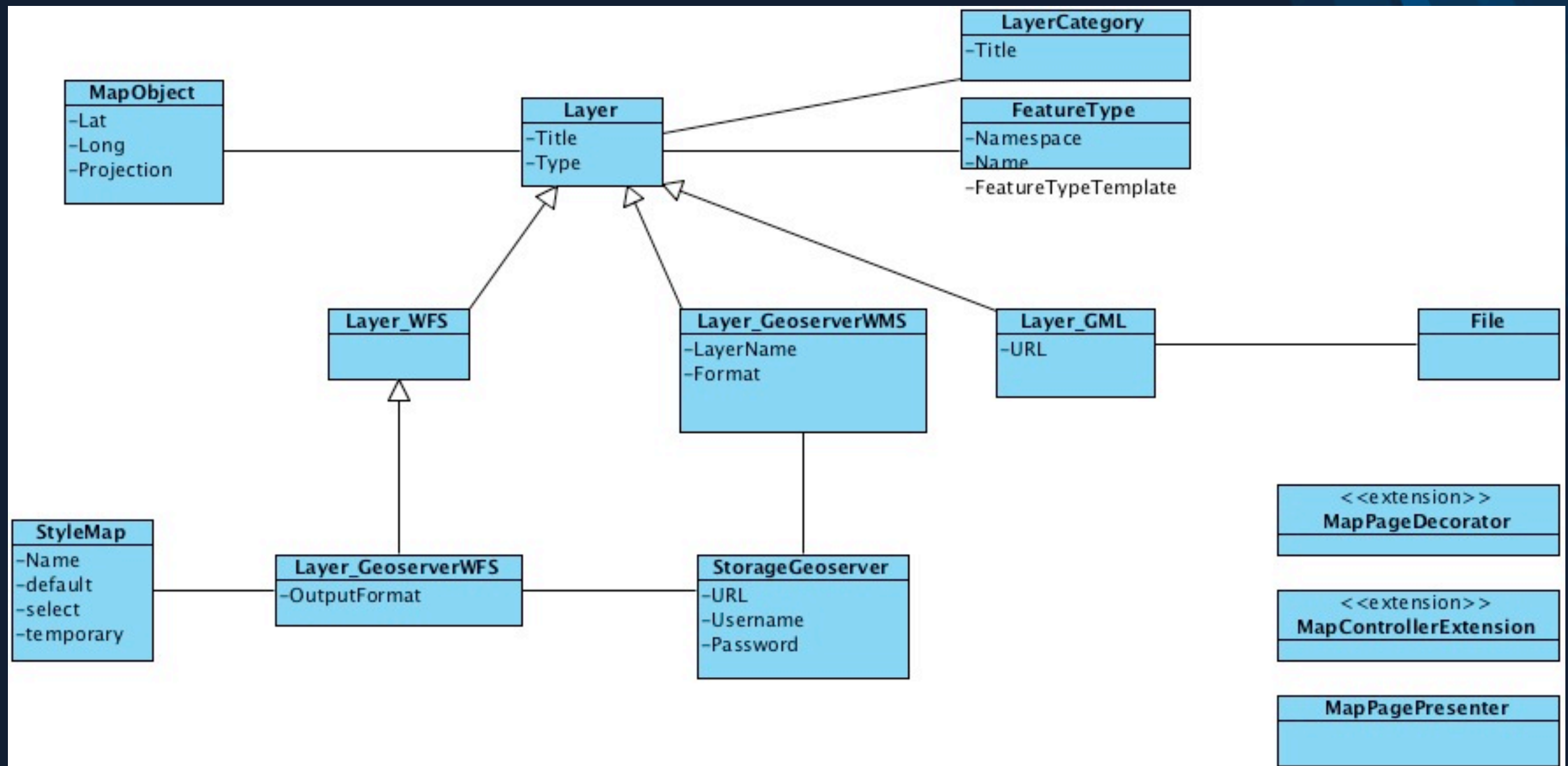
- OS2020 (<http://www.os2020.org.nz/>)
 - Integrating: UMN Mapserver, ESRI ArcGIS, PostgreSQL/PostGIS, GeoNetwork, custom web services.
- Marine Biosecurity Porthole Portal (<http://marinebiosecurity.org.nz/>)
 - Integrating: UMN Mapserver, PostgreSQL/PostGIS, GeoNetwork
- LINZ Metadata catalog (<http://geodata.govt.nz/>)
 - Integrating: GeoNetwork, OpenStreetMap
- Australian government department website
 - Integrating: PostgreSQL/PostGIS, GeoServer

SilverStripe GeoViewer

Fully customisable module, supported various web services

- OGC WMS and WFS (GeoServer custom), and flat files (KML,GML)
- Vendor map services (Google Maps, OpenStreetMap, others)
- Vector Style manageable via the CMS backend
- Vector Info bubble customisable
- Manage Layer groups and categories
- Extendable for any page time
- Embrace excellent user experience, custom business logic create fast apps.
- 27 October 2011, Wednesday, 10:30 AM Separate data providers from website managers and content editors

GeoViewer – Domain Model



GeoViewer – Installation

Install GeoServer locally on port 8080

Check out your SS 2.4 project with Blackcandy theme

C
d

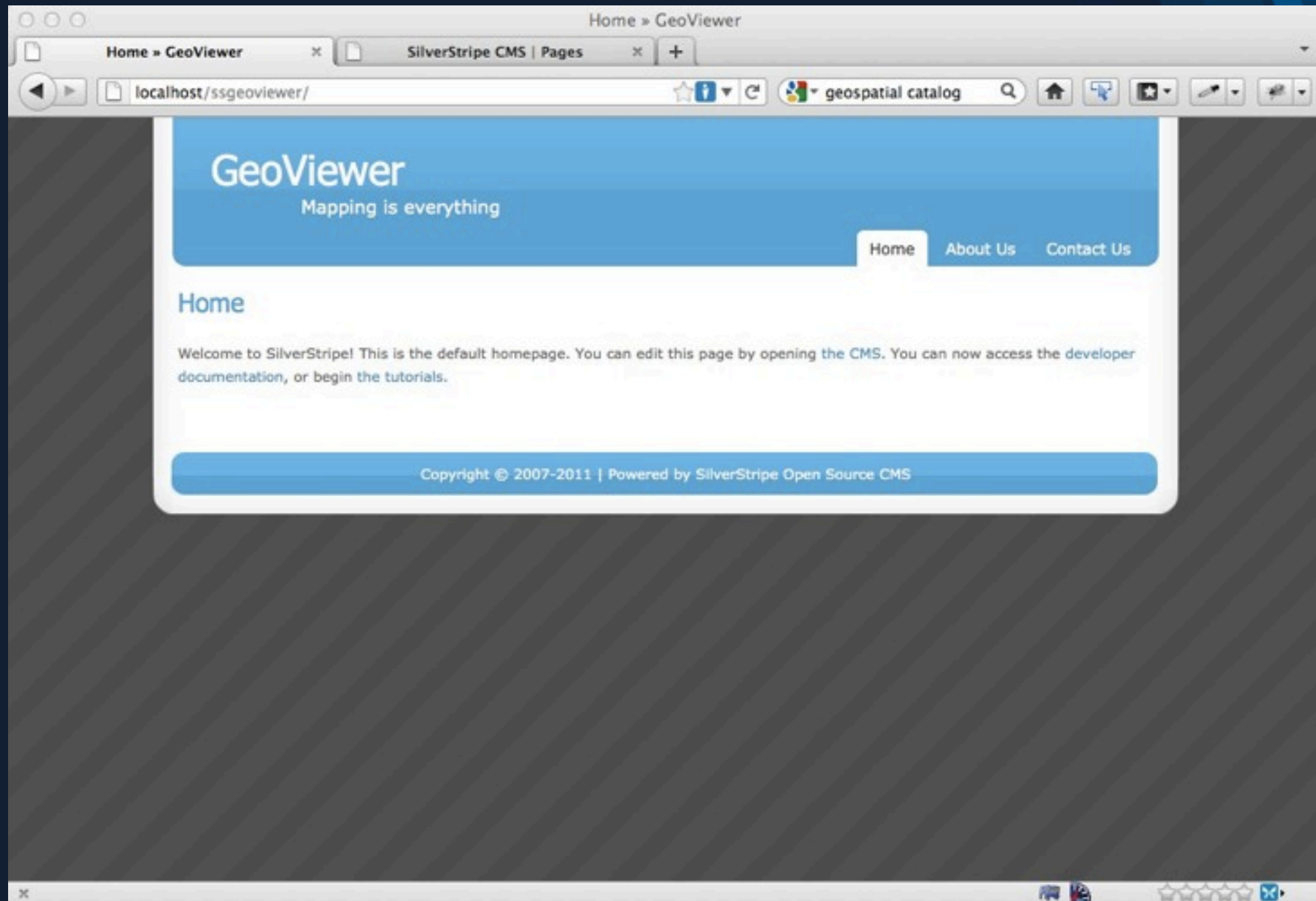
```
git clone git@github.com:silverstripe-labs/silverstripe-commandpattern.git commandpattern  
git clone git@github.com:silverstripe-labs/silverstripe-geoviewer.git geoviewer
```

run dev/build

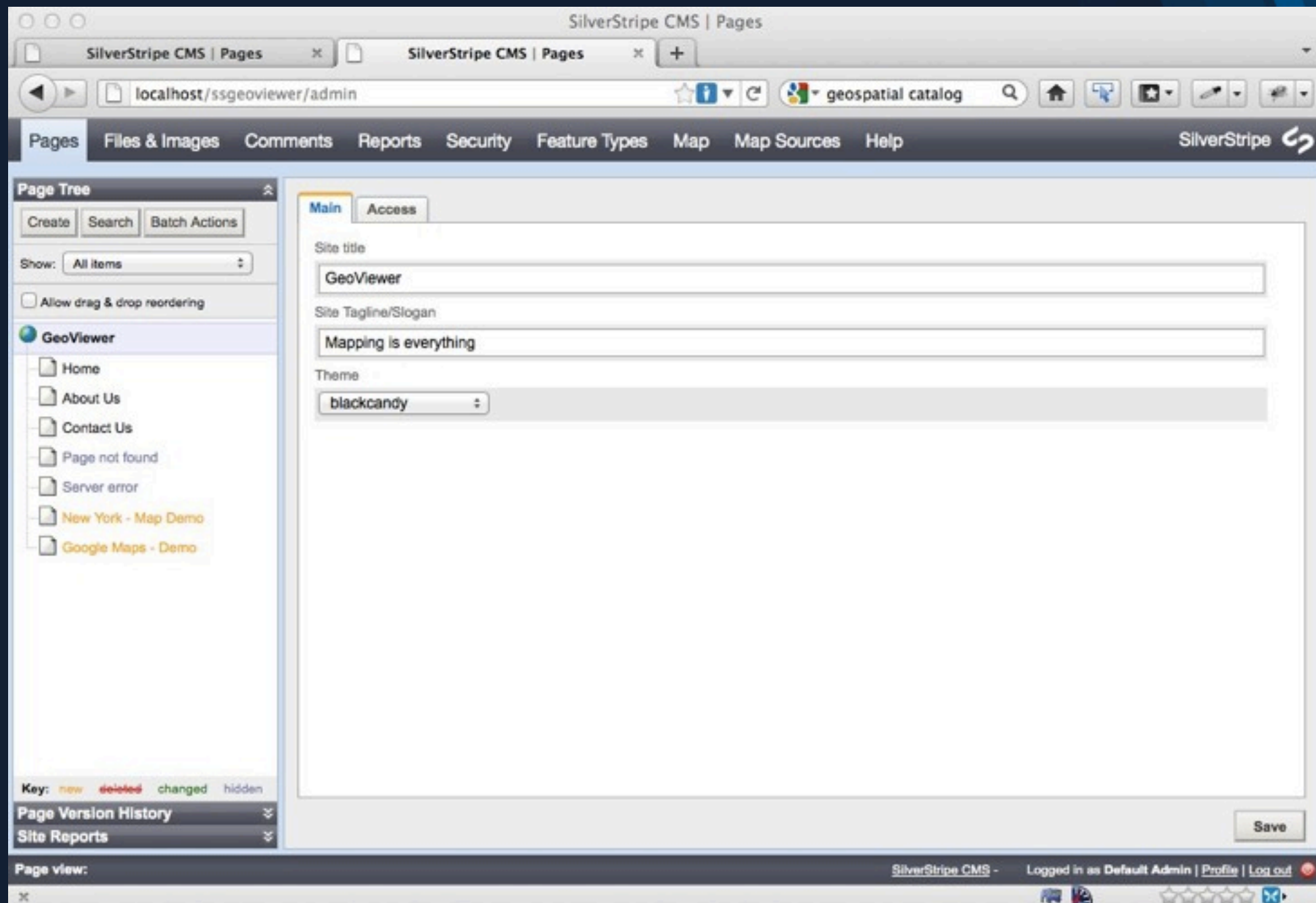
log into CMS and pre-view demo pages.

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GeoViewer – Backend / Frontend



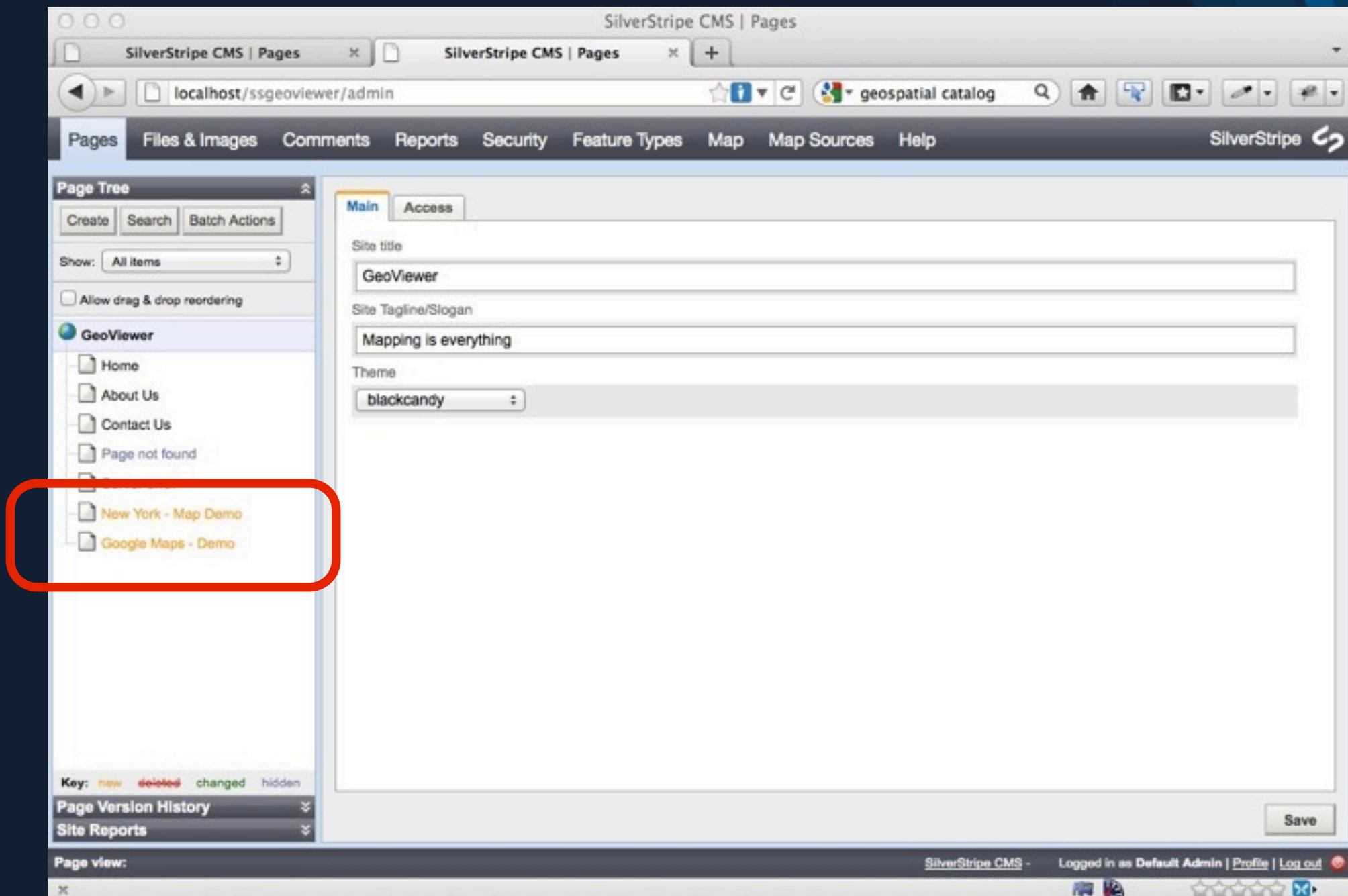
GeoViewer – Backend / Frontend



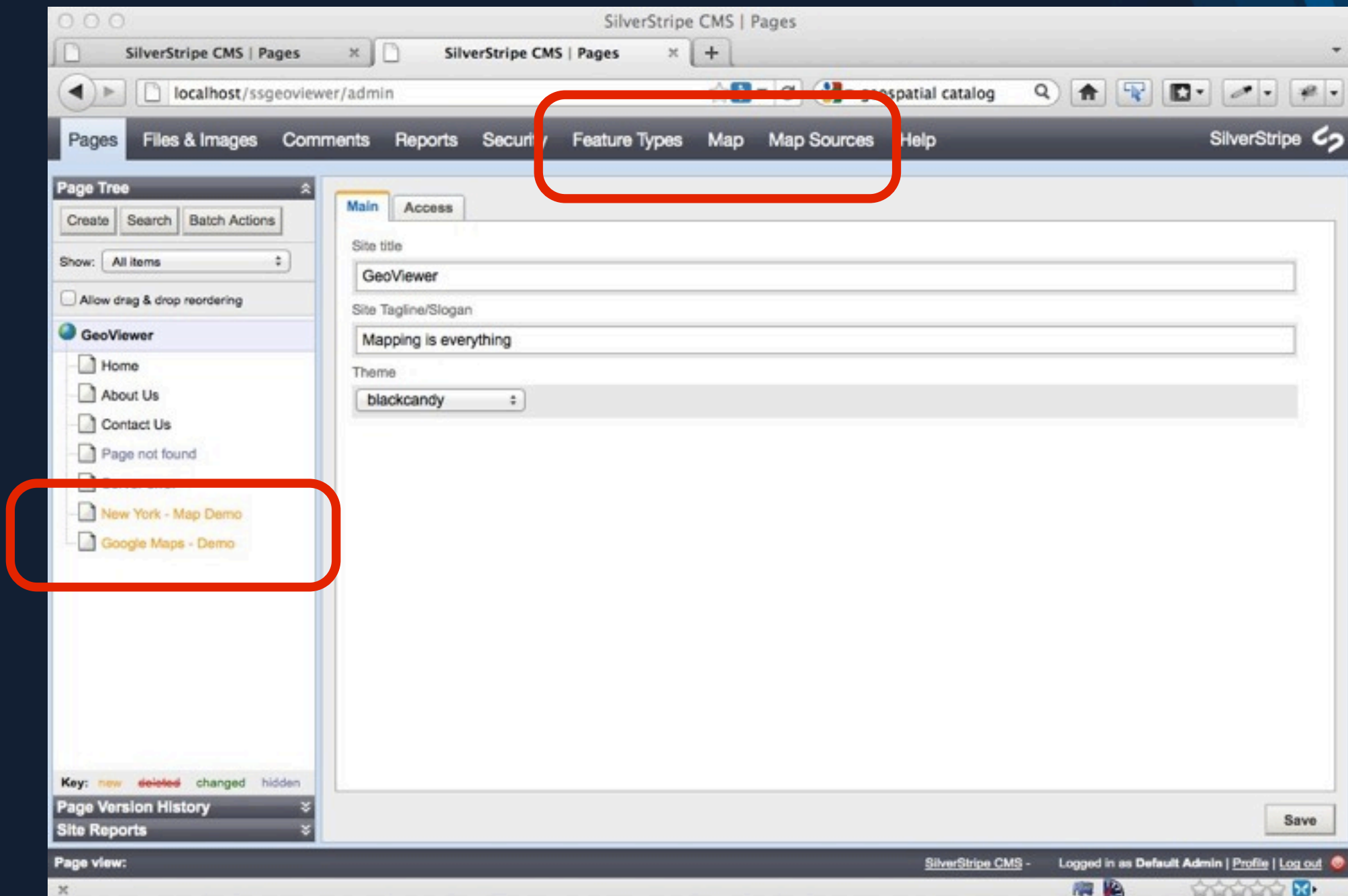
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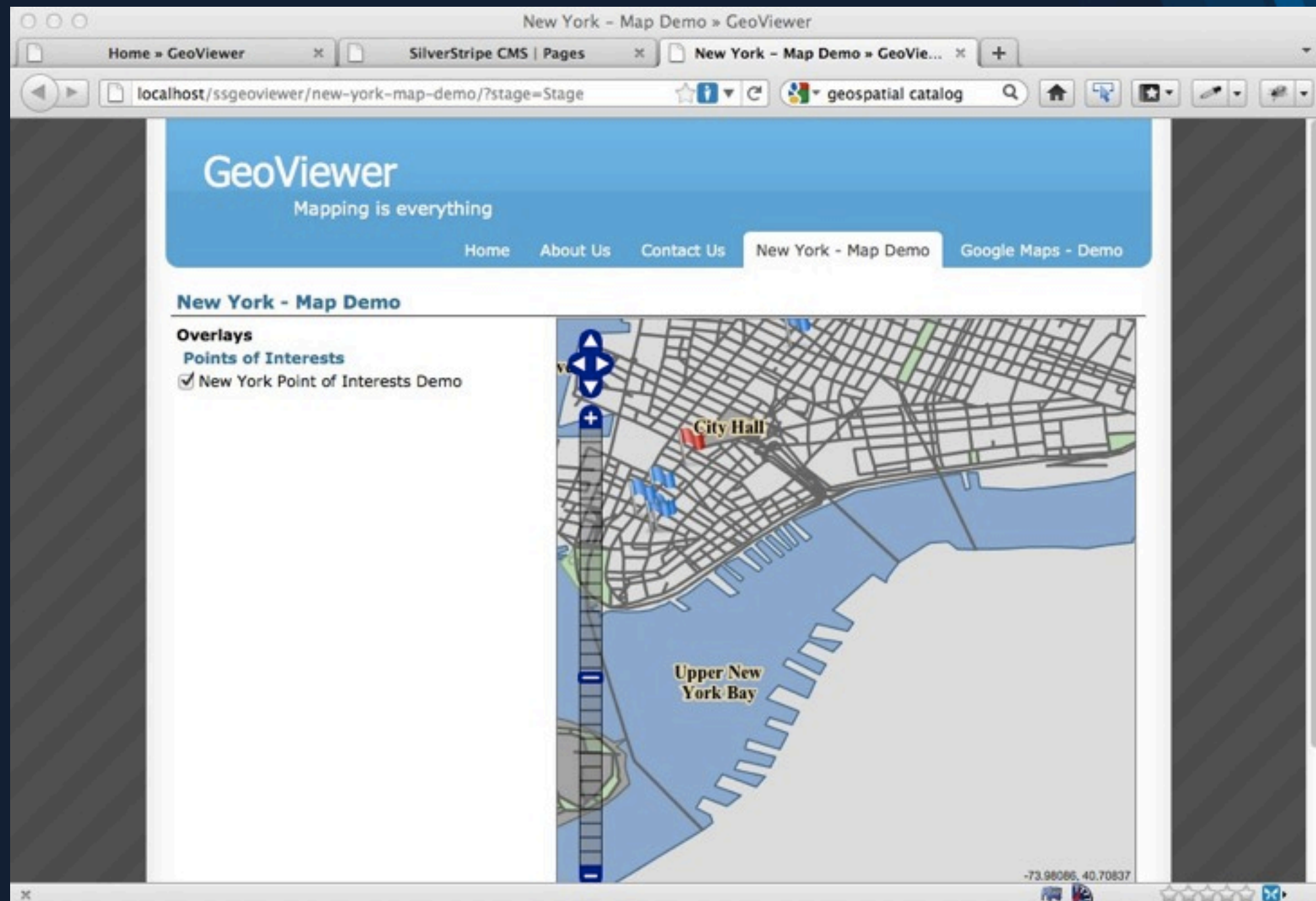
GeoViewer – Backend / Frontend



GeoViewer – Backend / Frontend

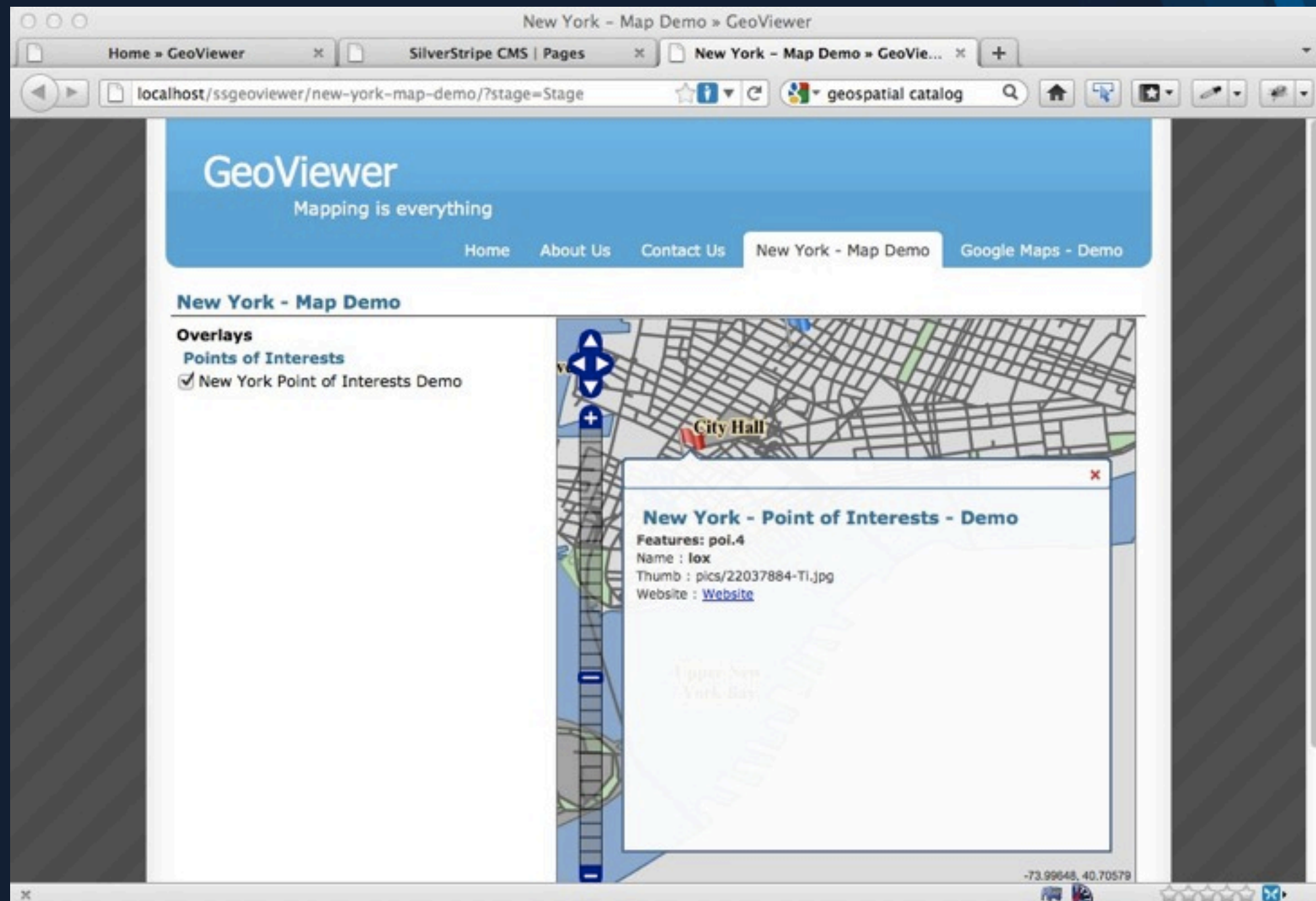


GeoViewer – Backend / Frontend

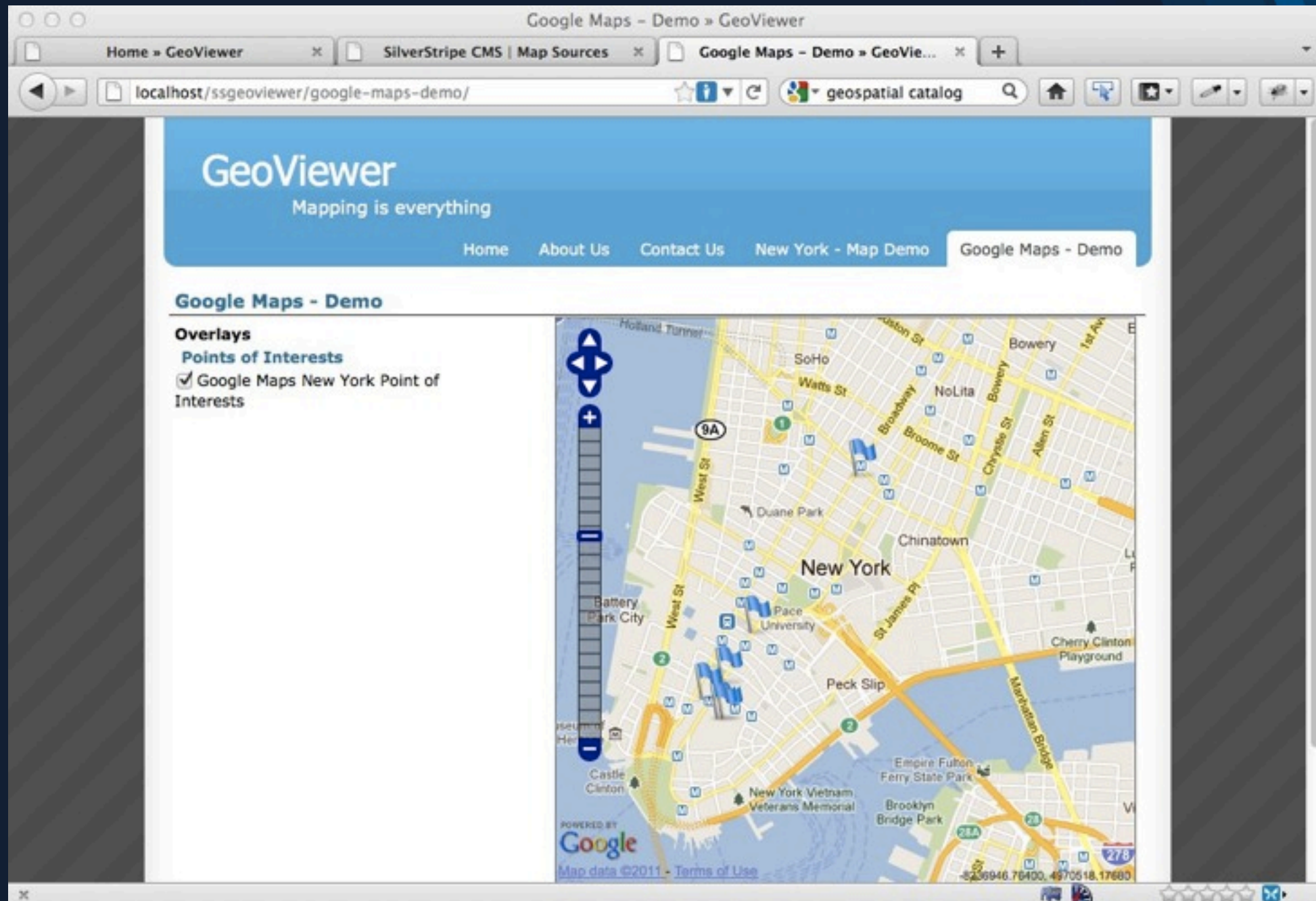


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GeoViewer – Backend / Frontend

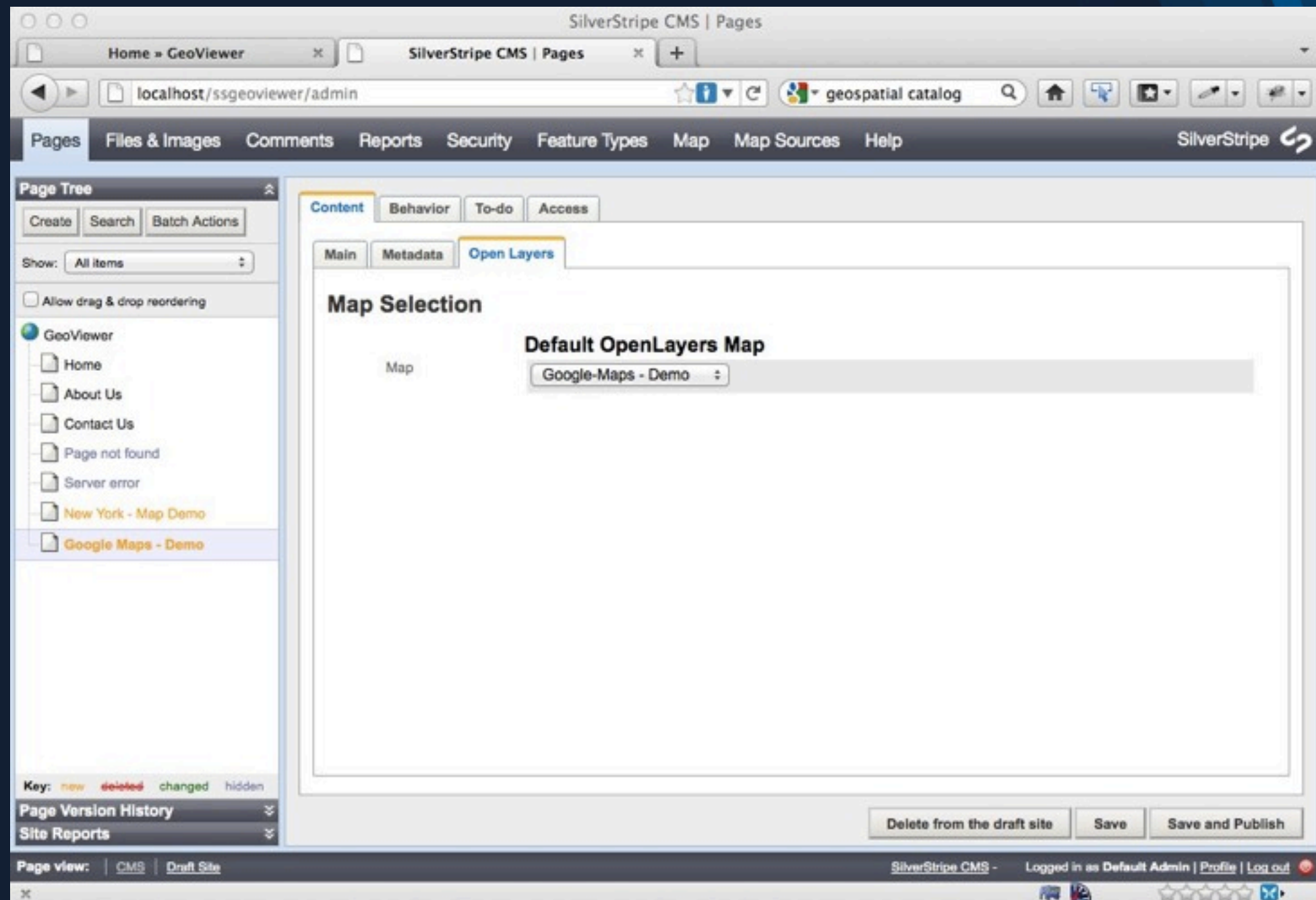


GeoViewer – Backend / Frontend



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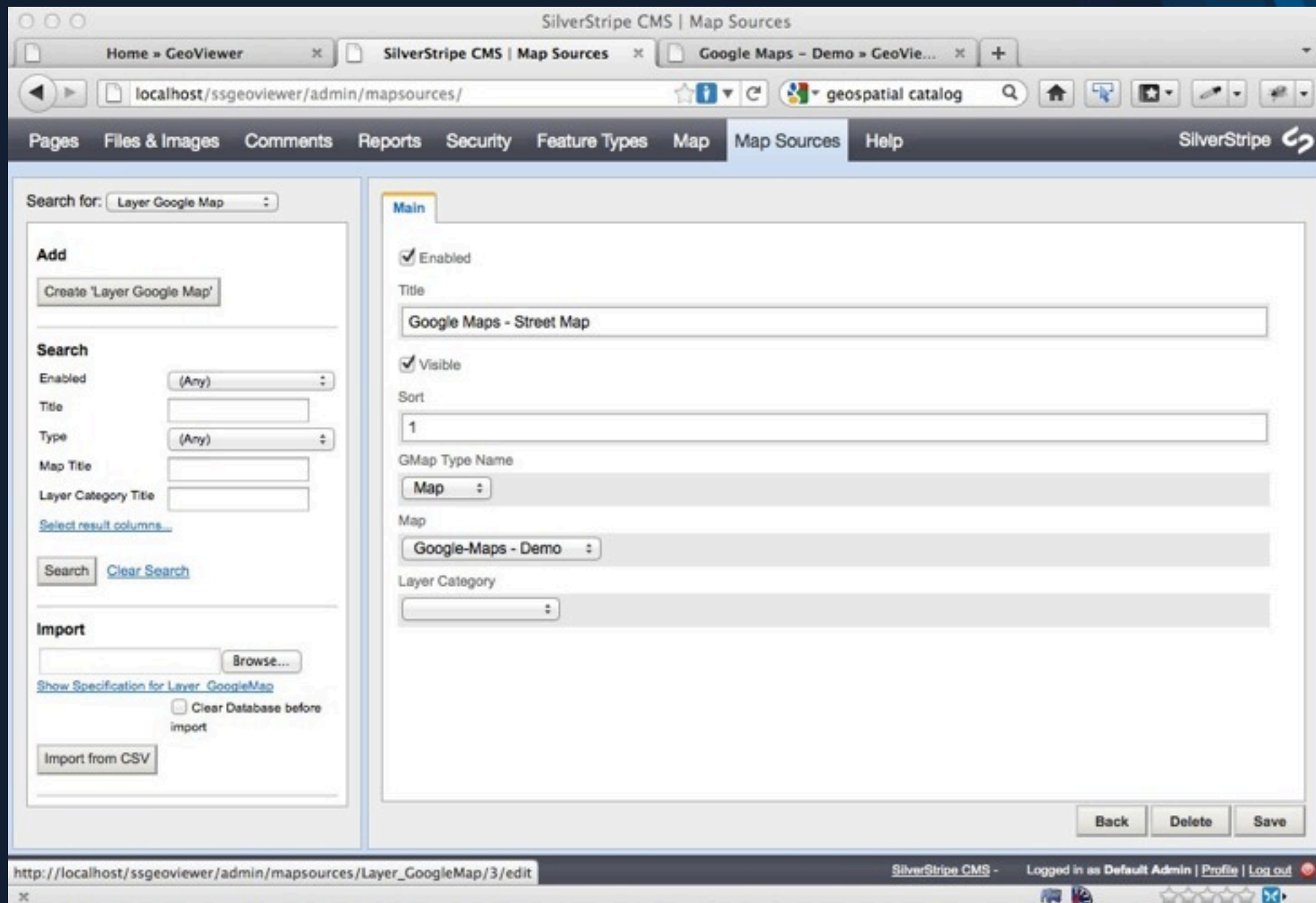
GeoViewer – Backend / Frontend



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GeoViewer – Backend / Frontend



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GeoViewer – Backend / Frontend

The screenshot shows the SilverStripe CMS 'Map Sources' administration page. The browser address bar indicates the URL is `localhost/ssgeoviewer/admin/mapsources/`. The page has a navigation menu with items: Pages, Files & Images, Comments, Reports, Security, Feature Types, Map, Map Sources, and Help. The 'Map Sources' tab is active.

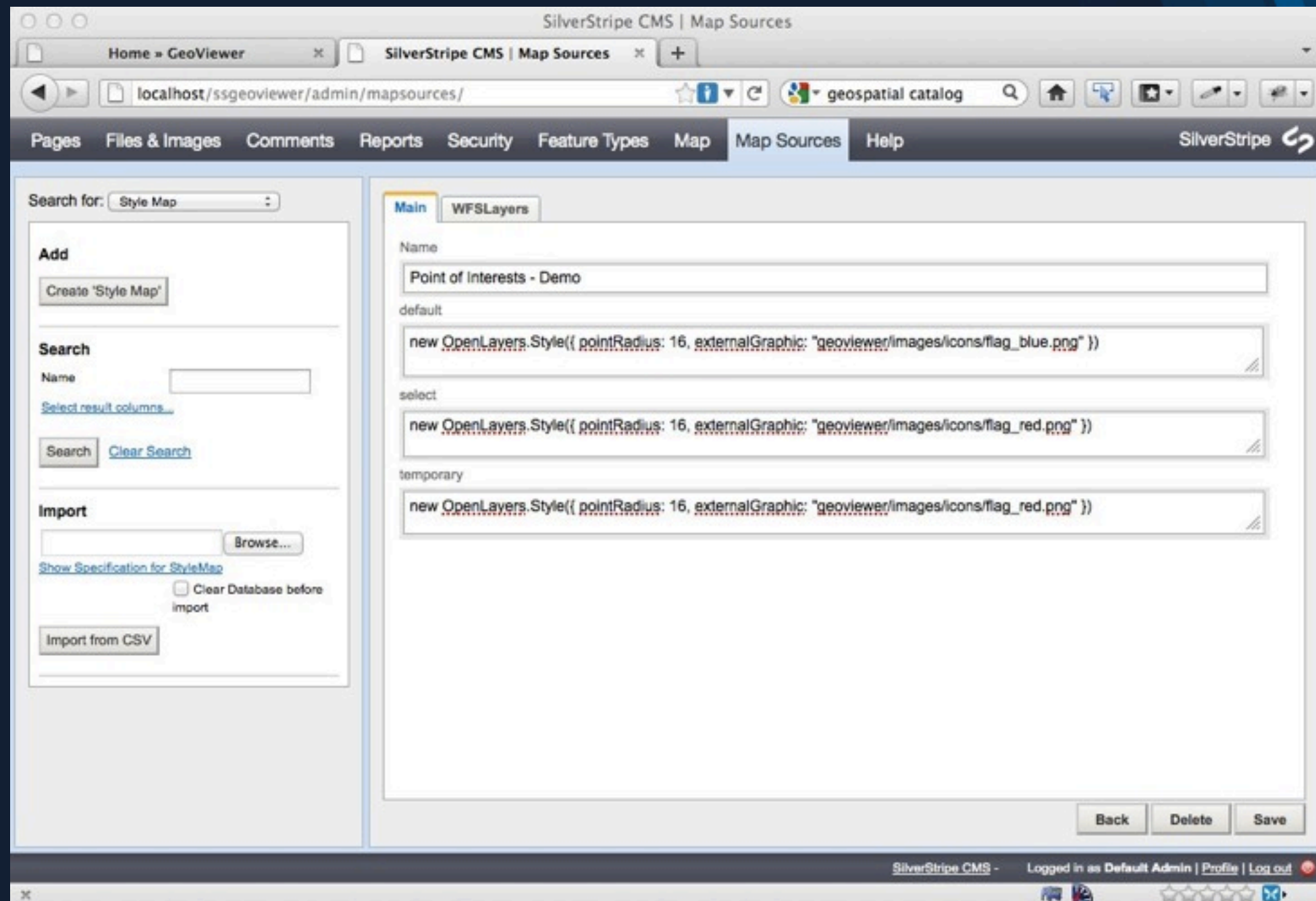
On the left side, there is a search section with the text 'Search for: Layer Geoserver W F S'. Below this are sections for 'Add' (with a button 'Create Layer Geoserver W F S'), 'Search' (with filters for Enabled, Title, Type, Map Title, and Layer Category Title), and 'Import' (with a 'Browse...' button, a checkbox for 'Clear Database before import', and an 'Import from CSV' button).

The main content area is titled 'Main' and 'Feature Types'. It contains a form for configuring a map source with the following fields:

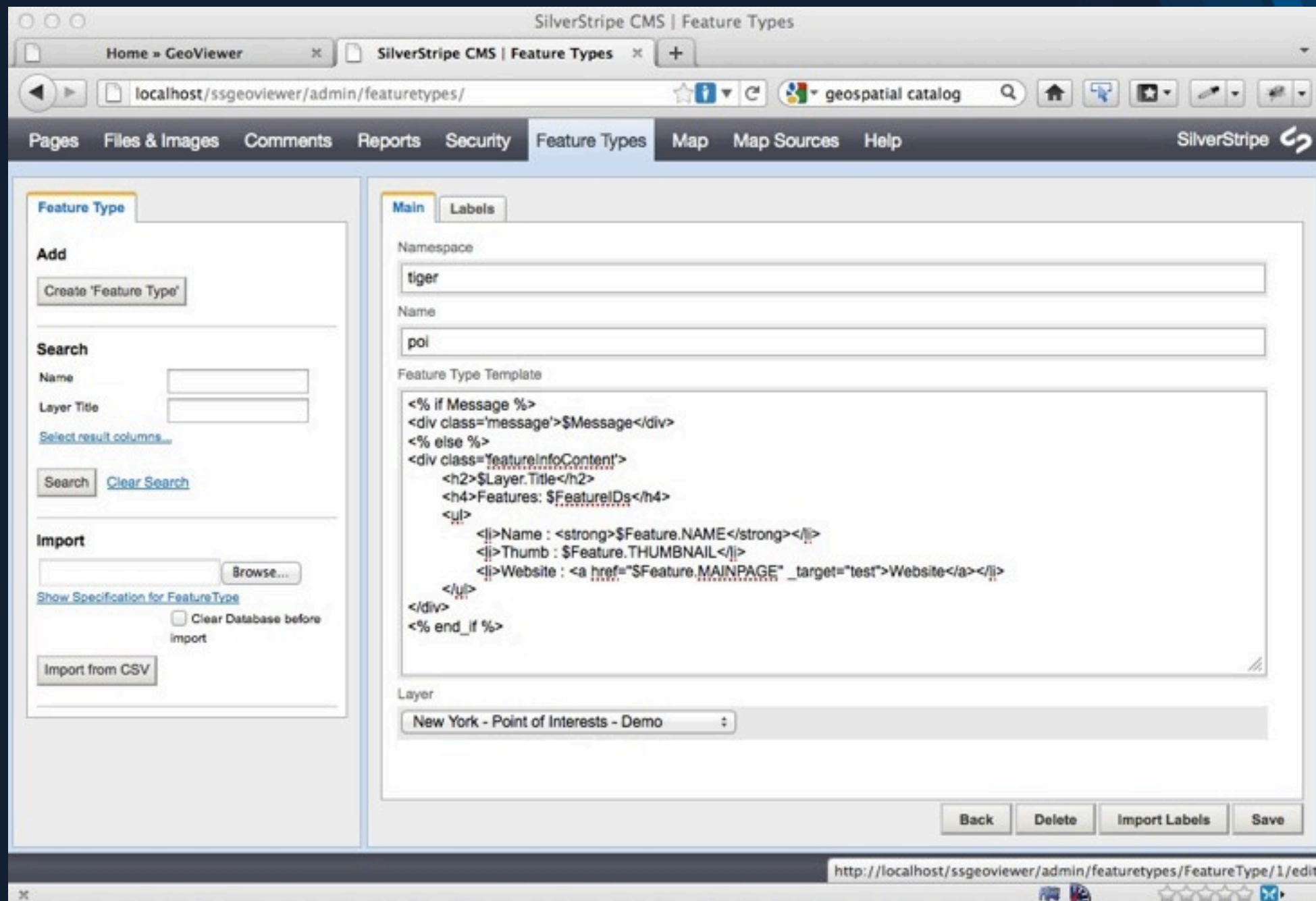
- ☒ Enabled
- Title:
- Type:
- ☒ Visible
- ☒ Queryable
- Sort:
- Namespace:
- Feature Type:
- Projection:
- Version:

At the bottom right of the form are buttons for 'Back', 'Delete', and 'Save'. The footer of the page shows 'SilverStripe CMS - Logged in as Default Admin | Profile | Log out'.

GeoViewer – Backend / Frontend



GeoViewer – Backend / Frontend



GeoViewer – Configure

Apply the map to any page-type:

```
DataObject::add_extension('MapPage', 'MapPageDecorator');  
Object::add_extension('MapPage_Controller', 'MapControllerExtension');
```

Configure proxy (for WFS request):

```
Proxy_Controller::set_allowed_host(array('localhost:8080', 'localhost'));
```

Manage all layer connectivity via CMS

**Custom 'MapWrapper.js' to change OpenLayers
behaviour**

Upload KML/GML files via assets

GeoViewer – Setup Template

In your PageType template, define the map

container:

```
<h2>$Title</h2>
```

```
$Content
```

```
<hr />
```

```
<!-- This example tempate fits with black-candy well-->
```

```
<div id="layerlist" style="width:300px;height:400px;float:left">
```

```
<% include LayerList %>
```

```
</div>
```

```
<div id="map" class="olMap initmap" style=""></div>
```

GeoViewer – What is next?

- Upgrade to OpenLayers 2.11 (mobile support)
- Security management
- Support Queries (i.e. search/filter) capabilities
- Integration of UMN Mapserver
- Integrated backend map builder/preview
- Versioning of the data model
- WFS-T support (online web-mapping editor)
- Map query enhancements (KML info tool, WMS/WFS info tool)

In terms of Geo-spatial – What is next?

SilverStripe GeoCatalog

- Manage metadata and make metadata accessible via Open Standards

SilverStripe GeoSpatial capabilities

- Enable SilverStripe Framework to support OGC SimpleFeature

SilverStripe Location Based Services capabilities

- Enable SilverStripe to support Location Based Services (OGC OpenLBS)
- Embrace mobile application development

Thank you!

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